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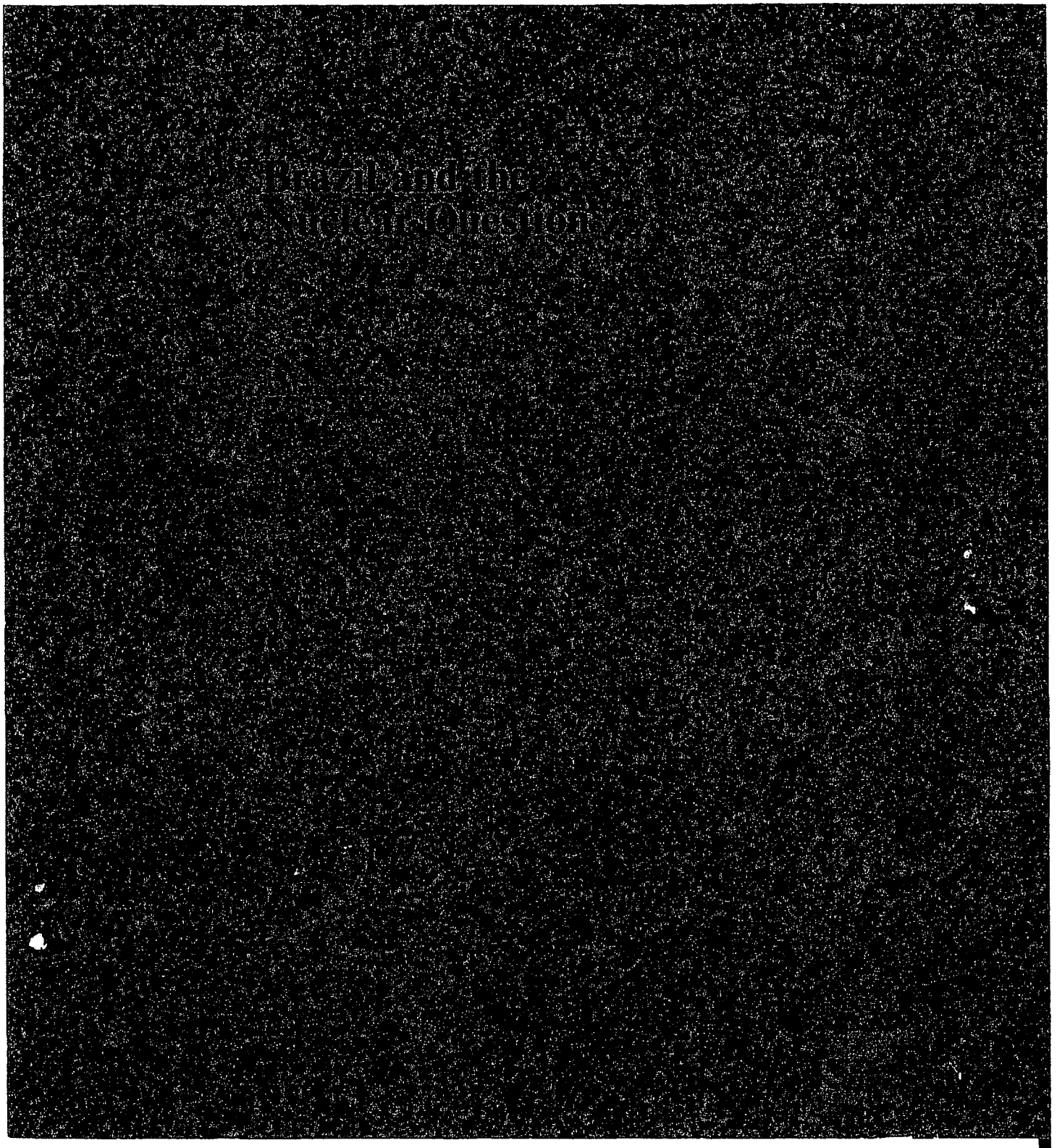

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DISSEMINATION CONTROL ABBREVIATIONS

NOFORN–	**Not Releasable to Foreign Nationals**
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BRAZIL AND THE NUCLEAR QUESTION

Central Intelligence Agency
National Foreign Assessment Center

May 1978

Key Judgments

Progress on Brazil's ambitious nuclear energy development program has been slower than expected. A major reason is that Brazil's nuclear accord with West Germany--central to Brazil's overall plans--has encountered problems.

Other considerations that could alter Brazilian approach on nuclear matters include:

-- The costs of the current nuclear program are sharply higher than originally anticipated.

-- President Geisel, who is heavily committed to the program, will leave office in less than a year, and his successor is not identified with the program in its present form.

-- A warming trend in relations with the United States, evident since President Carter's visit to Brazil in March.

-- Growing disillusionment with the West Germans.

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BRAZIL AND THE NUCLEAR QUESTION

Slow Progress to Date

Implementation of the 1975 Brazil - West German nuclear accord--the centerpiece of Brazil's ambitious nuclear development program--has proceeded slowly. The agreement calls for the joint development of power reactors and reactor components. Moreover, there is to be a jointly operated jet nozzle plant for uranium enrichment, a fuel reprocessing plant, and a uranium exploitation project. Thus far, only the reactor component plant and two of the eight planned reactors are under construction. Brazil's first power reactor, Angra I, being built by Westinghouse and a Brazilian firm at the Angra dos Reis nuclear center near Rio de Janeiro, will not be in operation by the target date of early 1979.*

Brazil has encountered difficulty in securing fuel for its program. URENCO, the European consortium from which the Brazilians hope to buy enriched uranium to fuel Angra II and III, cannot supply the needed material until the Dutch, who are consortium members, give their approval. In the meantime there have been unconfirmed press reports of French, British, and Soviet offers to fill the gap, by providing fuel enrichment services if the Brazilians purchase natural uranium elsewhere. The West Germans and the British have said they will provide fuel for Brazil if the Dutch do not approve the URENCO deal.

Factors Influencing Brazil's Nuclear Views

Brazilian thinking on nuclear matters is conditioned by three broad categories of factors. Relations with the United States, long the most influential foreign influence on Brazil, and with West Germany, Brazil's partner in an ambitious nuclear development venture, are major determinants.

*US-Brazilian nuclear cooperation began in the late 1950s as part of the Atoms for Peace program. Since then, the US has supplied Brazil with three research reactors, and there has been a steady exchange of technical information. The Angra I reactor from Westinghouse will be followed by nuclear plants to be developed as part of the accord with West Germany.

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Secondly, prospective political developments in Brazil--the scheduled change of administrations and the possibility of a greater civilian role in national life--have implications for the way in which Brazilian nuclear policies are made. Finally, economic considerations--notably the immense cost--loom large in Brazil's analysis of its nuclear plans.

Relations with the US

Brazil's relations with the US have improved in recent weeks. In large part this is the result of the visit by President Carter, who took the edge off the Brazilian anxiety by avoiding a confrontation over the nuclear and human rights issues and by taking account of Brazilian sensitivities. Brasilia's view of the seriousness of policy differences with Washington has in no way changed, but the Brazilians do seem disposed--for the moment at least--to deal with the US in a more constructive, less emotional way.

There are indications that the Brazilians are now seeking to speed up the improvement of relations with the US. For example, top Brazilian officers are said to favor proposing a new "military accord" with the US, possibly a modest version of the longstanding military agreement the Brazilians repudiated last year in anger over US human rights criticisms. A source of the US defense attache has said the chances are "excellent" that President Geisel will agree to make such a proposal to the US and noted that Brazil's leaders now seem willing to tolerate the US human rights reporting requirement, provided the information is not made public. The US Embassy reports that the Brazilians have lately been more approachable in a number of diplomatic areas, citing in particular, Brazilian enthusiasm for the idea of joint consultations on UN matters.

President Carter's tact in dealing with sensitive issues has eased the way for the Brazilian leadership to take steps toward a rapprochement with the US. But it is really basic Brazilian interests that dictate the effort to put relations back on a more solid footing. The Brazilians are still heavily dependent on the US, whatever their pretensions to developed-nation status. They realize full well that they need US markets and capital and, just as important, US good will to ensure favorable treatment by international financial institutions.

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Ironically, President Geisel's trip to West Germany early in the year may also have helped to drive home the point that Brazil still needs the US. Contrary to Brazilian hopes, the Germans played down the political significance of the visit and bluntly told Geisel that Brasilia's then-tense relations with Washington served neither German nor Brazilian interests. Geisel's effort to use the trip to dramatize the emergence of West Germany as a major alternative source of political--as well as economic--backing was, therefore, less than successful.

Dealing with West Germany

There are signs of Brazilian unhappiness over certain aspects of their dealings with the Germans, and the seeds of serious discord are clearly present. For example, since 1975 the Brazilians had assumed that they and the Germans would jointly construct a reprocessing facility capable of handling significant amounts of spent fuel. Late last year, however, the Germans informed Brazil that they could help construct a plant that had only a fraction of the capacity the Brazilians wanted.

Under the terms of an agreement with the other European nuclear nations, the Germans cannot transfer to third parties either the technology or an actual plant to reprocess more than a token amount of spent fuel without the approval of France and the UK.

The Brazilians from the outset may have simply misunderstood the nature of these constraints on the West Germans, or the West Germans may have deliberately misled the Brazilians in hopes of clinching the lucrative deal.

There are other problems as well. Brazilian nuclear industry officials have expressed annoyance, for example, at the somewhat overbearing German tendency to assume that in any joint venture, Brazilian procedures must always give way to German ones. The Brazilians were particularly upset when the Germans took for granted that the reactors to be built in Brazil with German help would be licensed by Germany and not by Brazil. The Brazilians have also been unhappy with German suppliers of needed hardware who, because they have a virtual monopoly, allegedly charge exorbitant prices.

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Brazilian technicians studying in West Germany reportedly asserted that the training they were being given was not commensurate with the type of advanced technology the Germans were to provide to Brazil. Moreover, late last year officials of Brazil's Nuclear Energy Commission traveled to West Germany to complain about alleged delays in the transfer to Brazil of certain kinds of technology.

Senior officials of Brazil's leading nuclear research institute at Sao Paulo recently criticized the thorium cooperation agreement signed by Geisel during his trip to West Germany. Officials of Brazil's Atomic Energy Institute (IEA) were disappointed that the president of West Germany's Juelich nuclear research institute, which is charged with implementing the thorium agreement with Brazil, spent only one day with them during his recent visit. There were no discussions of joint projects and the West German was noncommittal on new Brazilian proposals for cooperation. The Brazilian nuclear research officials now view the thorium agreement with Germany as a propaganda exercise and lean more toward the US thorium offer of last fall. At that time the US proposed joint development of the thorium fuel cycle, but the Brazilians, perhaps because they hoped to make progress with the West Germans, declined.

It is possible at least to question whether all the Brazilian complaints are well founded or even entirely genuine. For instance, what Brazilians term German foot-dragging in providing advanced technology could in fact be the result of the inability of Brazilian scientists to absorb this technology readily. Possibly, too, the Brazilians exaggerate the magnitude of technology transfer that was agreed to in the original accord. Indeed, some Brazilian officials reportedly privately acknowledge that during the negotiations of the accord, the Brazilian side did not in fact obtain West German agreement to the transfer of certain particularly important know-how, notably the Becker jet nozzle process used in the German uranium enrichment technique the Brazilians will be using.

If these officials are correct, Brazil will, in the long run, be highly dependent on West Germany for enrichment. This is precisely the opposite of what the German deal was supposed to accomplish. Indeed, the Brazilian officials who most favored the accord "sold" it to their countrymen with the contention that only the Germans were willing to give Brazil enough technology to achieve nuclear independence.

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In any event the claims of German reluctance to provide technology, justified or not, coupled with other sources of annoyance, could provide the impetus for Brazil eventually to scale down or back away from the agreement. For the moment, however, such a move seems remote.

The Political Scene at Home

Within less than a year General Joao Baptista Figueiredo, designated successor to President Geisel, will take over as chief executive. The President-designate has carefully avoided becoming identified with the current nuclear program, and there are indications he may favor changes in it. Figueiredo's well-publicized expressions of interest in Brazil's vast hydroelectric potential, for example, have prompted widespread speculation that he will deemphasize nuclear power. Perhaps more significantly, Figueiredo apparently takes counsel on nuclear matters from two Brazilian scientists who are well-known critics of current nuclear policies--Jose Goldemberg, one of Brazil's most eminent physicists, and Jose Israel Vargas, scientific adviser to the man who will become vice president. Goldemberg has reportedly said that Vargas will occupy a top nuclear policy position in the new government and believes that his own influence will increase substantially once Figueiredo takes over.

Over the next few years, moreover, there is the prospect of some liberalization of the political system, to allow for more civilian participation in decisionmaking. President Geisel has promised to commit the military regime to the process of "opening up" by the end of his term. While liberalization is by no means assured, many Brazilians in and out of the military take the possibility seriously.

Reform of the political system would almost certainly affect the way in which nuclear policy--among others--is made. Liberalization could subject the nuclear program to an unprecedented degree of public scrutiny. The Brazilian National War College reportedly has already urged the government to publicize more of the details of the nuclear program in order to obtain greater popular backing for it. There is nothing to suggest that the Brazilian public would want to scrap the nuclear program; indeed, the general notion acquiring a nuclear capability fits well with Brazil's sense of national pride.

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Nonetheless, if civilians are given a greater voice, the process of accommodating them will necessarily complicate matters for the military officers, who, until very recently, have not had to concern themselves very much with public opinion. There are many military men who would resist change and the risk that civilians will find fault with important aspects of the program.

Certainly the public's awareness of and interest in the status of Brazil's nuclear program has been heightened by recent, extensive press coverage of last fall's rash of fires at the Angra dos Reis nuclear center. Ironically, it was the regime's lessened press censorship that made possible the massive coverage of the story, with the consequent revelations of shoddy security and debilitating bureaucratic rivalries. The government has publicly acknowledged many of the charges made in the press. While this might lead to public skepticism about the wisdom of the nuclear program as it is now being implemented and about the competence of those who administer it, thus far there is no firm indication that the revelations have led to any widespread doubts.

If liberalization becomes a reality, it could be accompanied by a change in some policy priorities. The regime's single-minded concentration on economic development could give way to greater emphasis on socially oriented programs. An important complaint by civilians over the years has been that the regime has done much to push industrialization but very little to improve social services or to reduce gaping income disparities. Any significant reordering of priorities would require cutting back somewhere, and there are those who would argue that the nuclear program, which involves massive expenditures abroad, is one area to be trimmed.

Economic Factors

Economic factors may prove the most significant. The latest Brazilian estimate of the cost of the entire nuclear program is more than $15 billion, roughly three times the cost estimated in 1975 when the plans were formulated. Earlier estimates may have been kept deliberately low in order to promote the program, particularly the costly accord with West Germany. The completion of a full nuclear cycle and the rapid development of a nuclear equipment industry to support the program will probably add another

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$5 billion to the cost. Roughly $16 billion of the total would be in foreign exchange expenditures, at a time when Brazil has formidable balance of payments constraints. In addition, the state atomic power energy agency, Nuclebras, has serious cash flow problems, and there are manpower shortages because of the government's failure to pay competitive wages to skilled workers.

Brazil has alternative sources of energy--primarily hydroelectric--and they are more than adequate to meet electric power requirements in the 1990s and beyond. Indeed, the demand for electricity is not growing as fast as was earlier anticipated. The Ministry of Mines and Energy estimates the nation's hydroelectric potential at 200,000 megawatts, although most officials still use earlier projections of 150,000 MW. From the standpoint of cost, development of hydroelectric potential is substantially more attractive than the use of nuclear energy.

Available information suggests that development of hydroelectric potential probably will not reach the cost levels of nuclear power until more than 60 percent of the nation's potential is developed.

Current Prospects

Significant alteration of the current nuclear program is certainly not to be expected--if at all--until well after the change of administrations next March. Geisel is too closely identified with the program as it stands. Moreover, his administration is preoccupied with the succession process and with handling an increasingly complicated domestic political situation.

Reconciliation with the United States seems to be a major concern of the Brazilians right now. Figueiredo seems especially interested in establishing good lines of communication to Washington and reportedly feels a good start was made during President Carter's visit. Given this changed atmosphere, contacts with Brazilian officials are likely to be quite cordial and conducive to better relations.

The thaw in relations does not mean, however, that the Brazilians are no longer wary of US motives or possible pressure. A tremendous amount of Brazilian prestige--not

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to mention capital--is tied up in the nuclear endeavor, which many deem vital to the country's future. It would take relatively little outside pressure to push Brazil back to a stridently nationalist defense of its ambitious nuclear program.

Nonetheless, the Brazilians have a number of important reasons for reevaluating their nuclear program, and it seems reasonable to conclude that Figueiredo and his advisers will conduct a serious review of various options. It is entirely possible that the Brazilians will eventually conclude that their current plan is overly ambitious, given the country's needs and its capabilities. If such a critical analysis is indeed under way, further US blandishments could retard its progress, since the Brazilians would then resist making changes, if only to avoid giving the impression of bowing to outside pressure.

This memorandum was prepared in the Office of Regional and Political Analysis and the Office of Scientific Intelligence. Questions and comments may be addressed to [redacted] (b)(3) (b)(6)

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